

X³ 14. The video overlay device of claim 9 including a user interface operable to control the programmable switching mechanism to facilitate selective overlay display on a per application basis.

REMARKS

Applicant respectfully traverses a request for reconsideration. Claims 1 to 22 stand rejected under 35 U.S.C. §102b as being anticipated by Blahut, et al. (5,570,126).

The Blahut reference relates to a system for composing multimedia signals from various source signals. Blahut requires multiple and dedicated video scalers coupled to a single video combiner to perform the video overlay function for a single display device. One of a plurality of composing units, each of which is capable of composing a multimedia signal from selected source signal, is assigned for each multimedia signal to be composed. Moreover, a video combiner is used after signal decompression and before signal compression, so the plurality of input signals is consolidated into a single output signal, thus precluding the use of multiple display devices, and as such does not require the use of a selectable video clock source.

As to claim 1, the Examiner asserts that "Blahut discloses a video overlay apparatus [Fig. 4, 314] comprising: a video scaler [Fig. 4, 432] operatively responsive to input video data; and a programmable switching mechanism [Fig. 4, 440], operatively coupled to the video scaler, to selectively route video data to one of a plurality of video overlay generators [Fig. 4; 414, 416 and 430] to facilitate selective display of overlay data on a display device." (Office Action, page 2). The Examiner asserts that such a mechanism anticipates the present invention. (Column 6, Lines 39-49) Respectfully, Applicant disagrees. The Blahut reference provides that "the output of each video decompressor, 418 and 420, is connected to the input of a corresponding video scaler and positioner 430 and respectively, the outputs of which are connected to a video combiner 440" (Col. 6, lines 33 to 36). Each corresponding video scaler is coupled to a single (i.e., common) combiner. Thus, Blahut requires multiple video scalers such that a corresponding (i.e., dedicated) video scaler is used for each type of input video (e.g., still frame, full motion). Moreover, after a signal is passed through a dedicated video scaler, the single video combiner then combines it with all other outputs from all other video scalers. In fact, figure 4 shows this construction expressly by providing a one-to-one correlation between each decompressor and a

video scaler and a one-to-one correlation between each video scaler and each signal as it passes from the bus 412 to the common video combiner 440.

Additionally, Blahut provides that “video scalers and positioners 430 and 432 each have the ability to accept full video frames in digitized form from decompressors 418 and 420.” (Col. 7, lines 54 to 56). “Thus, the output of each scaler and positioner 430 and 432 is a digitized full video frame or sequence of frames.” (Col. 7, lines 62 to 64). Moreover, Blahut provides “video combiner 440 combines the outputs from video scalers and positioners 430 and 432.” (Col. 8, lines 19 to 20). Thus, this language provides for multiple video scalers and a single video combiner (i.e., overlay generator). In contrast, Applicant claims, *inter alia*, a video overlay apparatus comprising: a video scaler operatively responsive to input video data; and a programmable switching mechanism operatively coupled to the video scaler, to selectively route video data to one of a plurality of video overlay generators to facilitate selective display of overlay data on a display device. As discussed, Blahut does not teach, suggest, or require either the inclusion of a plurality of video overlay combiners (i.e., generators) as claimed or a programmable switching mechanism operatively coupled to a video scaler to selectively route video data to facilitate the selective display of overlay data on a display device. In fact, Blahut is directed to a different system and does not use, *inter alia*, a programmable switching mechanism. Accordingly, Applicant believes claim 1 to be allowable.

Claims 2, 10, and 16 are dependent upon claims 1, 9, and 15 respectively, which have been or will be shown to be allowable. Moreover, claims 2, 10, and 16 introduce additional novel subject matter that, particularly when considered in the context of their base claims, constitutes patentable subject matter. For example, Applicant claims that the programmable switching mechanism includes a programmable register. The cited portion of Blahut doesn’t require such a switching mechanism, but is instead devoted to the common video overlay generator, and is silent as to a register-based programmable switching mechanism. Applicant respectfully requests a showing by column and line number of a teaching in Blahut of a register-based programmable switching mechanism. Accordingly, Applicant respectfully submits that claims 2, 10, and 16 are allowable.

As to claim 3, Examiner asserts that “Blahut discloses a first display engine [Fig. 4; 432] responsive to first graphics data [Fig. 5; 520] for generating first video window timing data; a

second display engine [Fig. 4; 432] responsive to second graphics data [Fig. 5; 530] for generating second video window timing data; a first video overlay generator [Fig. 4; 430] operatively responsive to the first graphics data; and a second video overlay generator [Fig. 4; 414] operatively responsive to the second graphics data (Col. 9, Lines 15-29).” Applicant is unsure as to some of Examiner’s citations to the Blahut patent. Element 430 in Figure 4 is a video scaler and positioner, not a “first video overlay generator.” The common video combiner of Blahut appears to perform overlaying. Moreover, Element 414 of Figure 4 is a text graphics generator, not a “second video overlay generator.” However, interpreting this rejection in the most reasonable manner, nowhere in Blahut is there a reference to first and second video overlay generators because Blahut uses a common video combiner. In addition, Blahut is silent as to multiple display engines, and thus is likewise silent as to the use of the claimed timing data. Claim 3 requires, *inter alia*, first and second display engines responsive to first and second graphics data respectively, generating first and second window timing data respectively, and first and second video overlay generators operatively responsive to first and second graphics data respectively. Moreover, Applicant respectfully reasserts the relevant remarks with respect to claim 1. Accordingly, Applicant believes claim 3 to be allowable.

As to claims 4 and 11, Applicant respectfully reasserts the relevant remarks with respect to claim 3. Accordingly, claims 4 and 11 are believed to be allowable in light of Blahut.

Claims 5 and 19 introduce additional novel subject matter that constitutes patentable subject matter. For example, claims 5 and 19 both require, *inter alia*, a programmable switching mechanism that includes a selectable video clock source operatively coupled to the video scaler wherein the video scaler scales input video corresponding to a display engine for at least one of the plurality of video overlay generators in response to a video clock signal output from the selectable video clock source. The citation to Blahut provided by the Examiner teaches, *inter alia*, the use of a multiplexer to transfer packets after overlaying and compression. Accordingly, Applicant respectfully submits that claims 5 and 19 are allowable.

Claims 6, 12, and 20 introduce additional novel subject matter that constitutes patentable subject matter. For example, claims 6 and 12 both require, *inter alia*, a programmable switching mechanism that facilitates programming of frame buffer space for each display engine based on which video overlay generator has been selected to receive input video. Similarly, claim 20

requires, *inter alia*, the step of programming of frame buffer space for each display engine based on which video overlay generator has been selected to receive input video. The citation to Blahut provided by the Examiner does not teach or suggest programming frame buffer space for each display engine based on which video overlay generator has been selected to receive input video, in part because Blahut teaches one display engine and the use of one video combiner, precluding the need for a selection among video overlay generators. Accordingly, Applicant respectfully submits that claims 6, 12, and 20 are allowable.

Claims 7, 13, and 21 introduce additional novel subject matter that constitutes patentable subject matter. For example, claim 7 requires, *inter alia*, a programmable switching mechanism that facilitates switching between a plurality of display dependent clock signals that are selectively coupled to a common video scaler line buffer. Similarly, claims 13 and 21 require, *inter alia*, a programmable switching mechanism that facilitates switching between a plurality of display dependent clock signals. The citation to Blahut provided by the Examiner does not teach or suggest the use of a plurality of display dependent clock signals coupled to a common video scaler, in part because Blahut teaches neither the sharing of a common video scaler nor the inclusion of a plurality of video overlay generators. Accordingly, Applicant respectfully submits that claims 7, 13, and 21 are allowable.

Claims 8, 14, and 22 introduce additional novel subject matter that constitutes patentable subject matter. For example, claims 8, 14, and 22 require, *inter alia*, a user interface operable to control the programmable switching mechanism to facilitate selective overlay display on a per application basis. The citation to Blahut provided by the Examiner does not teach or suggest the use of a user interface operable to control the programmable switching mechanism to facilitate selective overlay display on a per application basis, in part because Blahut teaches the inclusion of neither a plurality of video overlay generators nor a programmable switching mechanism controllable on a per application basis. Accordingly, Applicant respectfully submits that claims 8, 14, and 22 are allowable.

Regarding claim 9, the Examiner rejected claim 9 for reasons similar to those discussed with respect to claims 1, 3, 5, and 19. Applicant respectfully reasserts the relevant remarks with respect to claims 1, 3, 5, and 19 above. Accordingly, Applicant believes claim 9 to be allowable.

Regarding claim 15, the Examiner rejected claim 15 for reasons similar to those discussed with respect to claim 1. Applicant respectfully reasserts the relevant remarks with respect to claim 1 above. Moreover, Blahut teaches that “the output of each video decompressor, 418 and 420, is connected to the input of a corresponding video scaler and positioner 430 and respectively, the outputs of which are connected to a video combiner 440” (Col. 6, lines 33 to 36). Each corresponding video scaler is coupled to a single (i.e., common) combiner. Thus, Blahut requires multiple video scalers such that a corresponding (i.e., dedicated) video scaler is used for each type of input video (e.g., still frame, full motion). Claim 15 requires, *inter alia*, scaling input video through a common scaler, and selectively routing video data from the common video scaler to one of the plurality of video overlay generators to facilitate selective display of overlay data on a display device. Accordingly, Applicant believes claim 15 to be allowable.

As to claim 17, the Examiner rejected claim 17 for reasons similar to those discussed with respect to claim 3. Additionally, the Examiner asserts that Blahut discloses generating a first video overlay based on the first graphics data and at least a portion of selectively routed input video data; and generating a second video overlay [Fig. 5; 550] based on the second graphics data and at least a portion of selectively routed input video data.” Applicant has shown claim 3 to be allowable. Moreover, the present invention claims that the first and second graphics data is to be selectively routed to one of a plurality of video overlay generators. Such a selection of routing is not available in Blahut, which does not teach, suggest, or require a plurality of video overlay generators. Accordingly, Applicant believes claim 17 to be allowable.

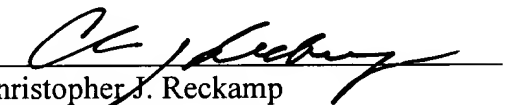
As to claim 18, the Examiner rejected claim 18 for reasons similar to those discussed with respect to claims 4 and 11. Additionally, the Examiner asserts that Blahut discloses keying [Fig. 4; 440] video and graphics data from a respective display engine and the selectively routed video data selectively routed by a programmable switching mechanism; and packing [Fig. 4; 444] combined video and graphics data for each respective video graphic overlay generator for alternate output to the display.” Applicant has shown claims 4 and 11 to be allowable. Applicant respectfully reasserts the relevant remarks with respect to claims 15 and 17 on which claim 18 is dependent. Accordingly, Applicant believes claim 17 to be allowable.

Attached hereto is a marked-up version of the changes made to the specification by the current amendment. The attached page is captioned "Version with markings to show changes made."

Applicants have made certain amendments to the specification. These amendments were made only to correct minor typographical errors and grammatical informalities. Applicants submit that none of these amendments introduce any new matter into the specification. In response to official draftsman's rejection of Figures 1. and 2., enclosed please find the corrected drawings for Examiner's review with correct margins. The two sheets of corrected drawings are also being submitted to the official draftsman in a separate letter.

Applicants respectfully request that a timely Notice of Allowance be issued in this case. The Examiner is invited to contact the below-listed attorney if the Examiner believes that a telephone conference will advance the prosecution of this application.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

Paragraph beginning at line 15 of page 2 has been amended as follows:

In such a[s] system, one display engine provides video window-timing data, such as video window-timing parameters, which define the size and position of the overlay in the viewing area. The start and ending points of the video window on the screen and other data, known in the art as graphics display data, may be packed by a data packer in the display engine. The other display engine for the other path does not allow for video overlay and thus is without video window-timing information and is simply a graphics data packer and graphics timing provider. As known in the art, a keyer mixes video and graphics data to see which information is overlaid on top of the other information. The output from the keyer is typically the overlaid information, which may be output to a digital to analog converter (DAC) and LCD display engine or other suitable display device. In addition, such systems typically use separate data packers, one dedicated to each display engine, and only one of the packers includes a keyer. The second packer does not provide overlay information, and as such, simply packs the display data in a form that is understood by the DAC.

Paragraph beginning at line 6 of page 6 has been amended as follows:

Each of the video overlay generators includes a graphics data unpacker 220a and 220b, a keyer 222a and 222b, and a data packer 224a and 224b. The unpackers 220a and 220b are operative to unpack packed graphics data 28a and 28b, received from respective display engines 24a and 24b. Each keyer 22a and 22b is operatively coupled to the graphics data unpackers 22a and 22b to receive unpacked graphics information 228a and 228b. Each of the keyers 22a and 22b is also responsive to selectively routed video data 18 from the programmable switching mechanism 16. As such, each keyer, 22a and 22b, suitably determines, based on the packed graphics information, the video window for which the selectively routed video data 18 is to be positioned within a display screen as known in the art. Data packers 24a and 24b received the keyed graphics and video information and pack the combined video and graphics information to generate the overlay information 30a and 30 b as known in the art.

Paragraph beginning at line 19 of page 6 has been amended as follows:

The selectable video clock source 202 is coupled to the common video scaler 12 by providing the single video clock signal [30a] 38. The video scaler 12 scales input video 14 corresponding to a display engine 24a or 24b by providing scaled video to the programmable switch 16 which then switches the video to the appropriate video overlay generator 20a or 20b, depending upon the control signal 32. The common (e.g., single) video scaler includes line buffer 221 and video scaler 223. The video scaler 223 receives the video data from line buffer 221 and window timing control signal 225 while line buffer 221 receives the single video clock signal 38. The stored lines of video data are then scaled by the scaler 223 as known in the art. As such, the video scaler scales the video in response to the video clock signal output 38 such that the timing of the video information and scaling is dependant on whether the video is selected to be mixed through video overlay generator 20a or video overlay generator 20b.

Paragraph beginning at line 23 of page 7 has been amended as follows:

In addition, the programmable switching mechanism 16 may also include video scaler control signal switch 227, such as a multiplexer, that receives a plurality of video scaler control signals 229a and 229b from the graphics display engines with the video window timers 24a and 24b. The video scaler control signal switch 227 outputs one of the two control signals 229a and 229b based on which path the video is to be sent. The control signals 229a and 229b include data [the] that represent, for example, when the video scaler is to start and stop based on the window timing data.

In the Claims:

Paragraph beginning at line 24 of page 11 has been amended as follows:

4. The video overlay device of claim 3 wherein each of the first and second video overlay generators includes:

a graphics data unpacker operative to unpack graphics data received from a respective display engine;

a keyer operatively coupled to the graphics data unpacker and responsive to the selectively routed video data from the programmable switching mechanism; and

a data packer operatively coupled to the keyer to pack combined video and graphics data from the keyer.

Paragraph beginning at line 9 of page 14 has been amended as follows:

14. The video overlay device of claim 2 [1] including a user interface operable to control the programmable switching mechanism to facilitate selective overlay display on a per application basis.

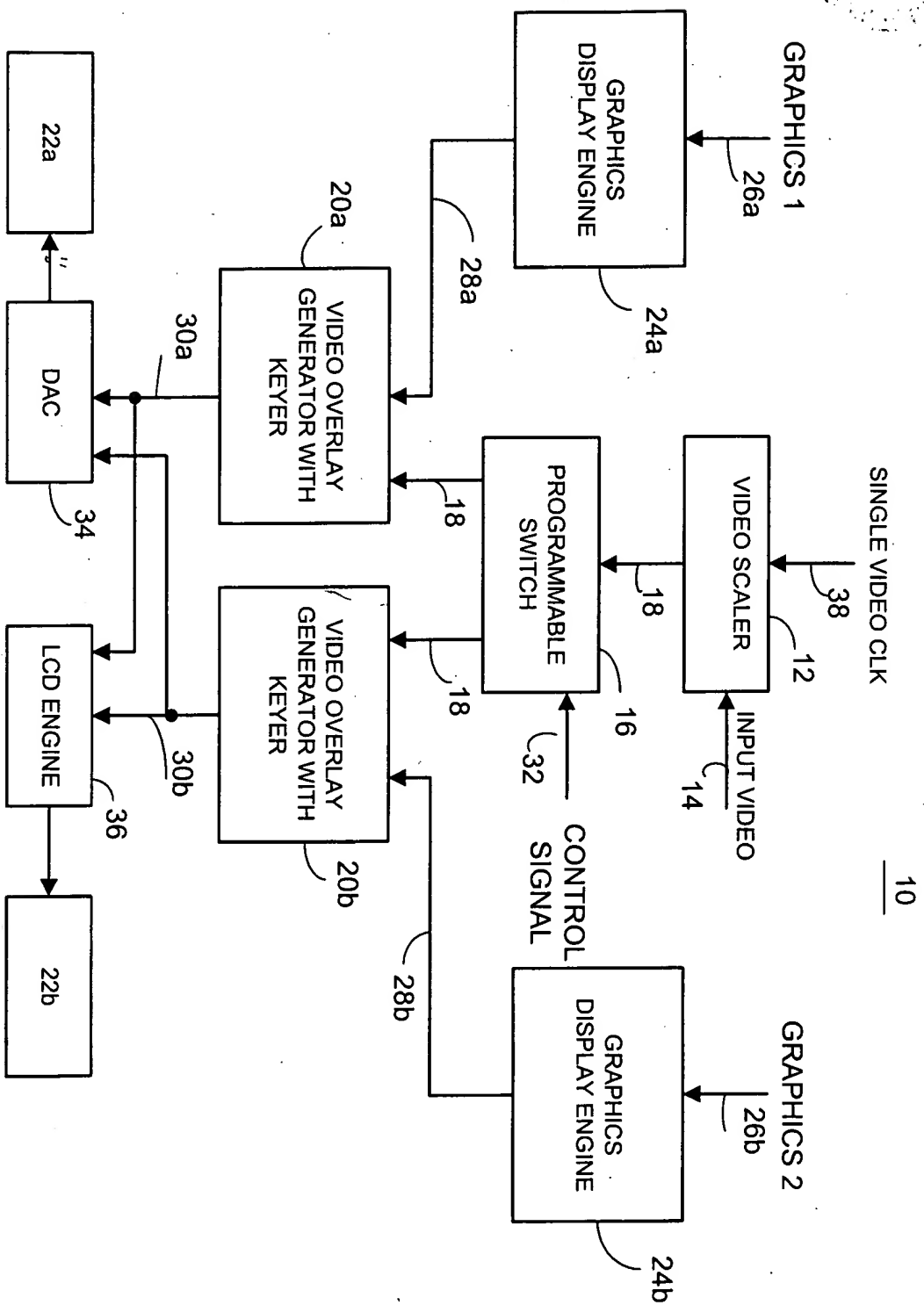


FIG. 1

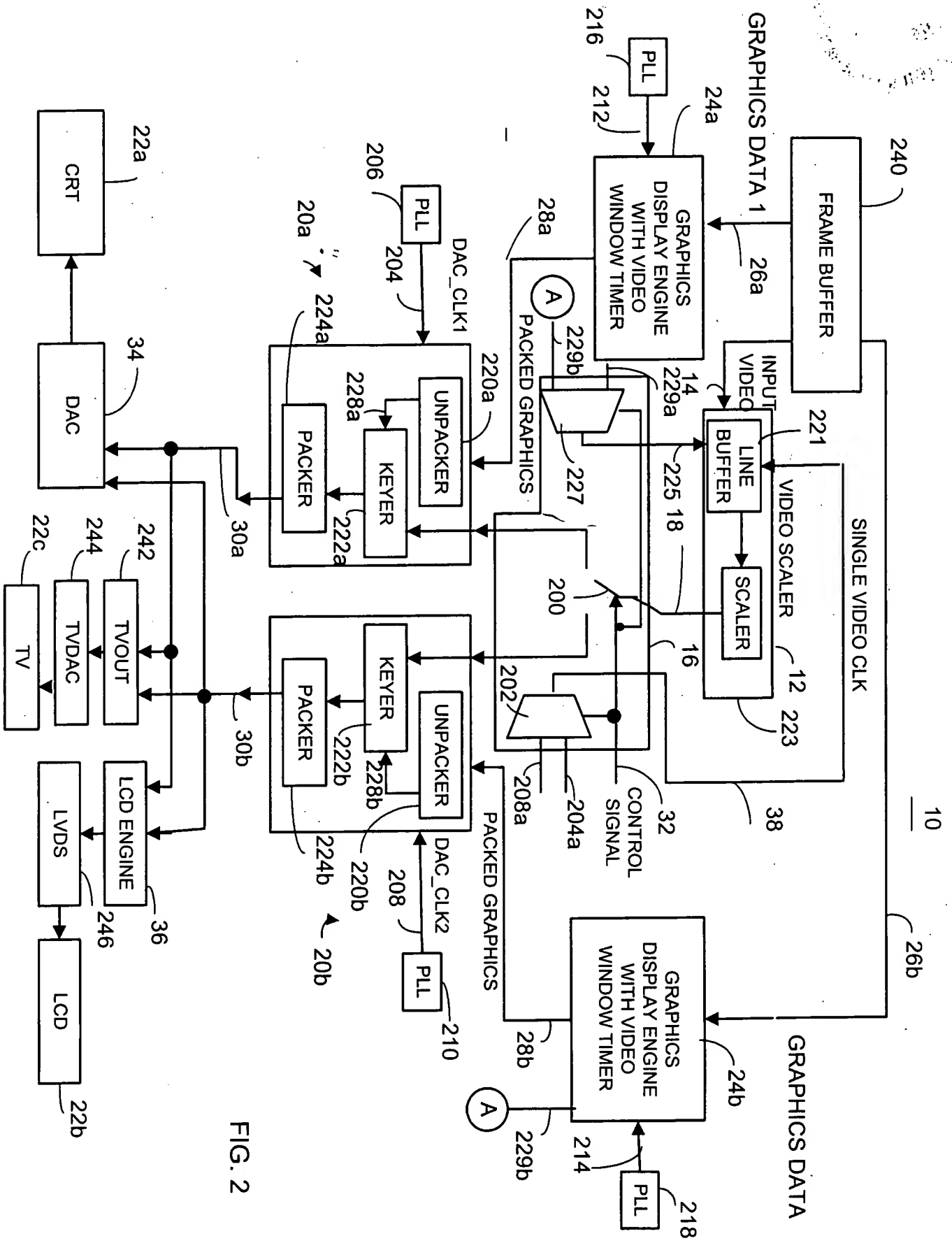


FIG. 2